IN THE SPECIFICATION

Please replace the paragraph on page 7, line 24-page 9, line 3, with the following rewritten paragraph:

A developing method of the present invention develops a latent image formed on the surface of an image carrier with toner grains, which constitute a developer together with magnetic carrier grains, by depositing the developer on a developer carrier, which faces the image carrier and accommodates magnets therein, causing the developer carrier to convey the developer to a developing zone formed between the image carrier and the developer carrier, and forming, in the developing zone, a magnet brush consisting of the magnetic carrier grains, which hold the toner grains thereon and gather in a form of brush chains, and free toner grains to be released from the carrier grains. At least one position where the brush chains of the magnetic carrier grains rise exists in a portion where an electric field formed between a facing zone where the image carrier and developer carrier face each other has a strength E (V/m) expressed as:

$$\cancel{E \geq |(A \cdot \rho_T \cdot d \cdot R)/(3B^{1/2} \cdot \varepsilon^0 \cdot V_{SL})|} \qquad \underline{E \geq \left| \frac{(A \cdot \rho_T \cdot d \cdot R)}{\left(3B^{\frac{1}{2}} \cdot \varepsilon_0 \cdot V_{SL}\right)} \right|}$$

where B is representative of ~~$Tc \cdot D^3 \cdot \rho_c/(100 - T_c) \cdot d^3 \cdot \rho_T$~~ $\underline{T_c \cdot D^3 \cdot \rho_c/(100 - T_c) \cdot d^3 \cdot \rho_T}$, A denotes a mean amount of charge ~~(μC/kg)~~ <u>(C/kg)</u> deposited on the toner grains, ~~Tc~~ $\underline{T_c}$denotes the content of toner grains (wt%), d denotes the mean grain size ~~(μm)~~ <u>(m)</u> of the toner grains, D denotes the mean grain size ~~(μm)~~ <u>(m)</u> of the magnetic carrier grains, ρ_T denotes the specific weight (kg/m^3) of the toner grains, ρ_c denotes the specific gravity (kg/m^3) of the carrier

grains, ε_o is 8.854×10^{-12} (F/m), R denotes the diameter of the developer carrier, and V_{SL} denotes the linear velocity of ~~said magnetic carrier grains~~ the developer carrier.

Please replace the paragraph at page 29, lines 7-14, with the following rewritten paragraph:

A developing method unique to the illustrative embodiment will be described more specifically hereinafter. The developing method to be described establishes a developing zone broader than conventional one and can therefore increase the amount of toner grains that contribute to development without increasing the ratio of the linear velocity ~~Vs~~ $\underline{V_{SL}}$ of the sleeve 111c to the linear velocity Vp of the drum 100, i.e., ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$.

Please replace the paragraph at page 44, line 20-page 45, line 9, with the following rewritten paragraph:

The linear velocity ratio ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$ of the sleeve 111c to the drum 100 will be described more specifically hereinafter. In the illustrative embodiment, the linear velocity ratio ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$ is selected to be greater than 0.9, but smaller than 4. Even if the linear velocity of the sleeve 111c is lower than the linear velocity of the drum 100, i.e., even if the ratio ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$ is smaller than 1, much toner grains can deposit on the latent image Li because the toner grains T part from the carrier grains CC in a sufficient amount. By causing the sleeve 111 to rotate with the ratio ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$ greater than 0.9, it is possible to increase the amount of toner grains T to deposit on the latent image Li for thereby increasing image density. The ratio ~~Vs/Vp~~ $\underline{V_{SL}/Vp}$ may be further reduced, depending on the amount of free toner grains T available.

Please replace the paragraph at page 48, line 8-page 49, line 3, with the following rewritten paragraph:

The strength of the electric field formed in the facing zone will be described more specifically hereinafter. By using the microscope and high-speed camera mentioned earlier, I observed the flight of toner grains in the portion A0 by using a mean amount of charge A ~~(μC/kg)~~ (C/kg) deposited on toner, a toner content T_c (wt%), a mean toner grain size d ~~(μm)~~ (m), a mean carrier grain size D ~~(μm)~~ (m), a developer carrier diameter R (mm) and a developer carrier linear velocity V_{SL} (mm/sec) as parameters. As FIG. 15 indicates, for toner grains to fly from carrier grains for development, the electric field strength E must satisfy the following relation:

$$\cancel{E \geq |(A \cdot \rho T \cdot d \cdot R)/(3B^{1/2} \cdot \varepsilon 0 \cdot V_{SL})|} \qquad E \geq \left| \frac{(A \cdot \rho_T \cdot d \cdot R)}{\left(3B^{\frac{1}{2}} \cdot \varepsilon_0 \cdot V_{SL}\right)} \right| \qquad (1)$$

where B is equal to $T_c \cdot D^3 \cdot \rho_c/(100 - T_c) \cdot d^3 \cdot \rho_T$, ρ_T denotes the specific gravity of toner grains (kg/cm^3), ρ_c denotes the specific gravity of carrier grains (kg/m^3), and ε_0 is equal to 8.854×10^{-12} (F/m).

Please replace the paragraph at page 52, line 1-page 53, line 4, with the following rewritten paragraph:

It was experimentally found that the constant α could be expressed as:

$$\alpha = \frac{8R}{\sqrt{n} \cdot V_{SL}} \qquad (7)$$

where n denotes the number of toner grains deposited on a single carrier grain. Assuming that toner grains are evenly deposited on carrier grains, then the number of toner grains n in the toner content T_c is derived from the weight ratio as:

$$n = \frac{T_c}{100 - T_c} \cdot \frac{M}{m} = \frac{T_c}{100 - T_c} \cdot \frac{\frac{4}{3}\pi\left(\frac{D}{2}\right)^3 \rho_c}{\frac{4}{3}\pi\left(\frac{d}{2}\right)^3 \rho_T} = \frac{T_c}{100 - T_c} \cdot \frac{D^3 \rho_c}{d^3 \rho_T} \qquad (8)$$

where m denotes the mass of toner grains, d denotes a toner grain size, ρ_T denotes the specific gravity of toner grains, M denotes the mass of the carrier grains, D denotes a carrier grain size, ρ_c denotes the specific gravity of carrier grains, R denotes the diameter <u>(m)</u> of the developer carrier, and V_{SL} denotes the linear velocity of the developer carrier.

Please replace the paragraph at page 53, line 10-page 54, line 3, with the following rewritten paragraph:

Although the equations (7) and (8) are not physically accounted for, they presumably suggest the following:

R: An increase in the diameter <u>(m)</u> of the developer carrier translates into an increase in the radius of curvature and therefore makes the rise of brush chains smooth while weakening a mechanical force. As a result, a stronger electric field is required;

V_{SL}: The electric field that causes toner grains to fly from carrier grains is lowered; and

n: Generally, the amount of charge q decreases with an increase in T_c with the result that the influence of a mechanical force increases, causing toner grains to fly from carrier grains in a weaker electric field. Also, even when q does not vary despite the variation of T_c,

the influence of counter charge to remain on carrier grains on the flight of a single carrier grain decreases with an increase in *n*, so that a weaker electric field allows toner grains to fly.

Please replace the paragraph at page 82, lines 13-25, with the following rewritten paragraph:

In the illustrative embodiment, too, the linear velocity ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ is selected to be greater than 0.9, but smaller than 4. Even if the linear velocity of he sleeve 111c is lower than the linear velocity of the drum 100, i.e., even if the ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ is smaller than 1, much toner grains can deposit on the latent image Li because the toner grains T part from the carrier grains CC in a sufficient amount. By causing the sleeve 111 to rotate with the ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ greater than 0.9, it is possible to increase the amount of toner grains T to deposit on the latent image Li for thereby increasing image density. The ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ may be further reduced, depending on the amount of free toner grains T available.

Please replace the paragraph at page 83, lines 1-12, with the following rewritten paragraph:

If the linear velocity ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ is increased, the impact with which the brush chains contact the drum 100 in the intermediate portion B is intensified. As a result, although more toners are splashed and deposit on the drum 100, more toners part from the drum 100 due to the impact. Further, in the downstream portion C, when the magnet brush rubs the drum 100, the frequency of contact of the carrier grains Cr with the drum 100 and therefore the amount of toner to part from the drum 100 increases. Particularly, when the ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ is greater than 4, it is likely that the trailing edge of a halftone portion is lost or that a horizontal, thin line image is blurred.

Please replace the paragraph at page 84, lines 16-23, with the following rewritten paragraph:

In the illustrative embodiment, the drum 100 is provided with an outside diameter of 90 mm and driven at a linear velocity of 156 mm/sec while the sleeve 111 is provided with a diameter of 18 mm and driven at a linear velocity of 214 mm/sec. The linear velocity ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ stated earlier is therefore 1.4. In the illustrative embodiment, required image density is available even if the ratio ~~Vs/Vp~~ $\underline{V_{SL}/V_P}$ is as small as 0.9.

Please replace the paragraph at page 93, line 19-page 94, line 6, with the following rewritten paragraph:

Use was made of the yellow toner whose ~~TC~~ $\underline{T_c}$ and q/m were 7 wt% and –18 μC/g was used. As for the bias, an AC component having a peak-to-peak voltage Vpp of 1 kV and a frequency f of 2.5 kH and having a rectangular wave (duty = 50 %) was superposed on a DC component V_{DC} of –500 V. The drum was charged to –100 V or –300 V. Under these conditions, the flight velocity of the toner grains T was measured in the upstream portion A. Every time the duty ratio was varied, the DC component V_{DC} was also varied to have the effective value of –500 V at all times. More specifically, the effective DC value and AC component Vpp both were not varied, but the duty ratio wave varied to vary the flight velocity of toner grains.

Please replace the abstract on page 138, with the following rewritten abstract:

ABSTRACT

In a magnet brush type image developing method of the present invention, at least one position where brush chains formed by magnetic carrier grains rise exists in a portion where

an electric field formed between a facing zone where an image carrier and a developer carrier face each other has a strength E (V/m) expressed as:

$$\cancel{E \geq |(A \cdot \rho_T \cdot d \cdot R)/(3B^{1/2} \cdot \varepsilon^0 \cdot V_{SL})|} \quad \underline{E \geq \left| \frac{(A \cdot \rho_T \cdot d \cdot R)}{\left(3B^{\frac{1}{2}} \cdot \varepsilon_0 \cdot V_{SL}\right)} \right|}$$

where B is representative of ~~$Tc \cdot D^3 \cdot \rho_c/(100 - T_c) \cdot d^3 \cdot \rho_T$~~ $\underline{T_c \cdot D^3 \cdot \rho_c/(100 - T_c) \cdot d^3 \cdot \rho_T}$, A denotes a mean amount of charge ~~(μC/kg)~~ (C/kg) deposited on the toner grains, ~~Tc~~ $\underline{T_c}$denotes the content of toner grains (wt%), d denotes the mean grain size ~~(μm)~~ (m) of the toner grains, D denotes the mean grain size ~~(μm)~~ (m) of the magnetic carrier grains, ρ_T denotes the specific weight (kg/m^3) of the toner grains, ρ_c denotes the specific gravity (kg/m^3) of the carrier grains, ε_o is 8.854 x 10^{-12} (F/m), R denotes the diameter of the developer carrier, and V_{SL} denotes the linear velocity of ~~the carrier grains~~ the developer carrier.